Keeping going

Visitors to Bandolier are often surprised at the small size of the team, and the short commons available to support it. We bother to keep going because it's fun, and because there is no good reason to stop. Thank you for support in the form of subscriptions, the messages that brighten our days, and the suggestions for new topics or issues that we might consider. Please keep the ideas coming.

Use it or lose it

This is the 137th issue of Bandolier Journal. A remarkable achievement since the appearance of the first edition in 1994 and even more remarkable in that, for the past three years, Bandolier has been supported by subscriptions alone. No money from the big guns of government or industry. So a big thank you to everyone who takes the trouble to subscribe and help keep things going.

We want to continue to produce the Journal in paper format and our research tells us that that is the wish of our readers also. We cannot continue to do this if our subscription numbers fall below a breakeven figure. So please remember this when your renewal letter arrives on your desk. It might just be the cessation of your sub - together with a few others - that takes us below that figure and into oblivion. Bandolier isn't ready for oblivion quite yet. Bandolier keeps going because its readers continue to value and trust its independent views.

Subscriptions

July is the month when the majority of subscribers to the paper version have to make decisions about renewal. This year the price remains the same as it always has been, with no increase. Bandolier hopes your decision is positive. Paper issues run about four months ahead of online, and that delay will increase over coming months.

In some parts of the world, notably New Zealand, many GPs have a monthly copy, printed locally under license. In the UK Bandolier has a policy of lower rates for bulk purchases. The tariff is in Table 2. This makes it possible to contemplate having copies for everyone, not just for libraries.

Online

Online Bandolier is much more than a collection of past paper issues. For some time the electronic form has been an accessible resource of good evidence across a range of topics. In this last year Bandolier's online pages have been viewed

In this issue

Table 1: Subscription rates for bulk copies of Bandolier in the UK

Bulk copies	£ per subscription (12 issues)	Total (£)
1	36	36
2-4	30	30 (x number)
5	25	125
10	20	200
25	15	375
50	12	600
75	11	825
100	10	1000
200	9	1800
>200	just ask	

2-3 million times a week, by professionals and public, and around the world.

Bandolier online has been developed using support from charities, individuals, and industry, but always with the proviso that no sponsor has any say in editorial content. Specialist areas have been developed, occasionally summarised in downloadable PDFs. Up to 200,000 have been downloaded in a single week. PDFs and specialist sources developed or updated in the last year are shown in Table 2.

Table 2: Some new PDFs and sub-sections available on the Bandolier Internet site

PDFs	Sections
MMR and autism	Patient perspectives
Topical analgesics	Learning zone
Statins	Healthy living
Care Pathways	Internet and electronic
NSAIDs and bone healing	Pharmacy
Policosanol	Restless legs

Myocardial infarction: aspirin, NSAIDs, and coxibs

Hands up anyone not presently confused about whether coxibs or NSAIDs do or do not cause heart attacks? We have had lots of papers, randomised trials, meta-analyses, and observational studies, none of which wholly give an answer that makes complete sense. Regulatory bodies and their experts are having to re-evaluate information and guidance, so there is little hope of ordinary folk understanding what is going. A large Danish observational study [1] does much to help.

Study

Denmark provides an excellent source of observational data because it has a national health service and superb facilities to produce unambiguous linkage between what happens in hospitals and in the community.

Over four years all patients with a discharge diagnosis of myocardial infarction over 20 years old living in a community of 1.4 million people were identified. Ten controls were selected for each case matched by age and sex. Prescriptions for NSAIDs (except low dose 200 mg ibuprofen tablets), coxibs and high dose aspirin (200-500 mg) were obtained. Use was classified by current (filled prescription within 30 days), new users with a first prescription within 30 days, and recent users (30-90 days) or past users (prescription filled more than 90 days before an event).

Possible confounding factors were obtained from discharge and prescription history, and the confounding factors used to adjust crude relative risks. About 20 separate confounders were used for adjustment. Relative risks were calculated with reference to non-use of coxib or NSAID, which was lower in cases than controls, and which consequently resulted in an increase in relative risk of about 12%.

Risk of myocardial infarction was defined where possible.

Figures 1 and 2: Percent of cases and controls using coxibs (top) and NSAIDs (bottom)

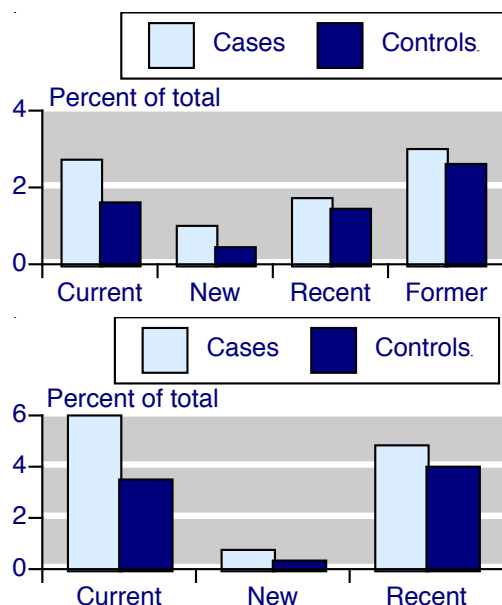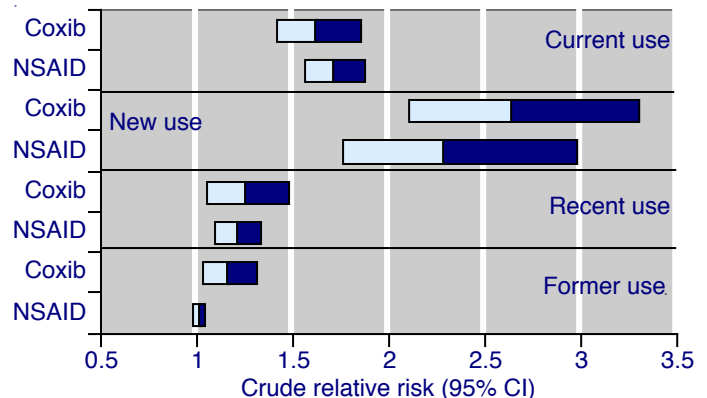## Figure 3: Crude relative risk for all coxibs and NSAIDs by type of use compared to nonuse

Figure 3: Crude relative risk for all coxibs and NSAIDs by type of use compared to nonuse

High risk was defined as at least one previous hospital admission for cardiovascular disease, diabetes, hypertension, and prescriptions for cardiovascular or diabetes medicines. Low risk was absence of these factors.

Results

There were 10,280 cases and 103,000 controls. The average age was 70 years, with a range of 19 to 101 years. About 60% were men. Cases were much more likely than controls to have discharge diagnoses of cardiovascular disease, hypertension, diabetes, and respiratory problems. They were more likely to have prescriptions for platelet inhibitors, antihypertensive drugs, diabetes medicines, lipid lowering drugs and nitrates. Use of NSAIDs or coxibs was 55% in cases and 49% in controls.

Coxib and NSAID use is shown in Figures 1 and 2. Over 30% of cases and controls were former users of NSAIDs. Crude relative risks compared to non-use are shown in Figure 3 for all coxibs combined, and for all NSAIDs combined.

For current users the adjusted relative risk was significantly increased with use of aspirin, non-naproxen NSAIDs, rofecoxib, and other coxibs, but not naproxen or celecoxib (Figure 4). Point estimates ranged from about 1.3 for aspirin and celecoxib to 1.8 for rofecoxib. The smallest number of cases in this category was 26 for naproxen, and for other analyses there were always more than 50 cases.

For new users, the adjusted relative risk was significantly increased for aspirin, coxibs and non-naproxen NSAIDs (Figure 5). For naproxen there were only 4 cases who were new users. Point estimates ranged from 1.3 for aspirin to 3.4 for other coxibs. The number of cases was smaller in this analysis, mostly between 20 and 60.

The relative risk for recent and former use was always lower than for current or new use. Significantly increased relative risk occurred only for former users of coxibs other than celecoxib or rofecoxib (relative risk 1.2; 95% confidence interval 1.01 to 1.4), former users of high dose aspirin (1.3; 1.1 to 1.4), and recent users of non-naproxen NSAIDs (1.2; 1.1 to 1.3).

Analysis according to cardiovascular risk was restricted to a sub-group for whom there was information to calculate risk. Relative risk was significantly higher for rofecoxib

Figures 4 and 5: Relative risk of MI admission for current users (top) and new users (bottom), compared to nonuse
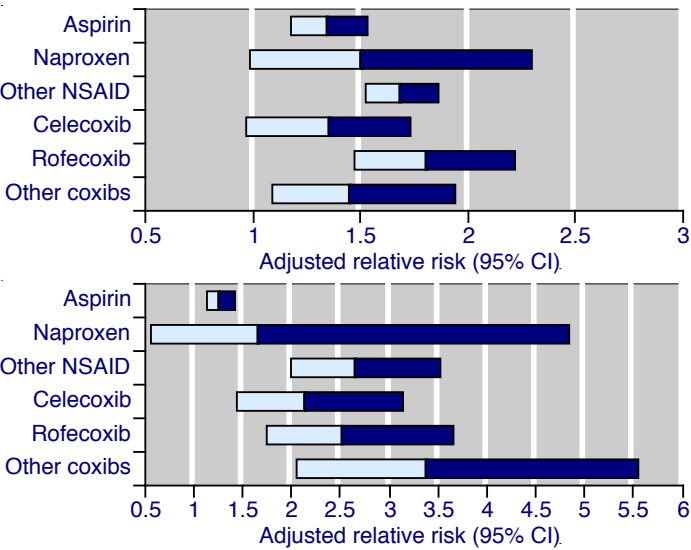
and non-naproxen NSAIDs in low risk and high risk persons (Table 1), though numbers used to calculate this were small. There was no association between the number of filled prescriptions and risk of myocardial infarction for any drug category.

Comment

Until now we have had only analyses with relatively small numbers of events, and with different comparators. By and large, in people with arthritis, meta-analyses of randomised trials and observational studies agree that there is no large difference between coxibs and NSAIDs, other than rofecoxib doses of 50 mg a day or more, where there was a consistent effect. Comparisons with placebo in randomised trials have been limited by small numbers of events in studies of limited duration.

In three-year studies comparing aspirin or coxibs with placebo to prevent colorectal adenomas, the published information to date shows consistently increased rates of cardiovascular events, with dose response, even for low dose aspirin. In three-year studies comparing NSAIDs or coxibs with placebo in Alzheimer disease prevention, there is no difference between coxibs and placebo.

The strengths of this Danish study include its large size, with 10,000 cases, its population-based design, and the fact

Table 1: Relative risk in persons with low and high cardiovascular risk. Statistically significant results bold, shaded

	Adjusted relative risk (95% CI)	
	Low risk	High risk
Naproxen	2.0 (0.89 to 4.3)	1.4 (0.82 to 1.6)
Other NSAIDs	**2.0 (1.6 to 2.5)**	**1.6 (1.4 to 1.8)**
Celecoxib	1.8 (0.92 to 3.1)	1.2 (0.85 to 1.5)
Rofecoxib	**2.8 (1.7 to 4.5)**	**1.6 (1.2 to 2.0)**
Other coxibs	1.8 (0.98 to 3.3)	1.1 (0.8 to 1.6)

that it looked at coxibs, NSAIDs, and high dose aspirin. It collected information on many confounding variables, and used them to adjust relative risk. This is important, because cases were different from controls, with much more cardiovascular disease, hypertension, and diabetes.

The major weakness is that it could not collect information on dose, likely to be a major factor. Nor could it collect information on lifestyle or diet, again important determinants of cardiovascular risk.

The study tells us that current and new users of coxibs, NSAIDs, and aspirin are associated with a higher risk of hospital admission for myocardial infarction. That risk may lower with naproxen and celecoxib, though the strength of that conclusion is limited by having only 26 cases for naproxen and 71 for celecoxib. Even a very large study like this has size limitations, because only about 2% of cases and controls were current users of coxibs. Analysis by individual drugs further reduces the number of events for analysis.

A similar, large case-control study from the UK [2] had almost identical conclusions. It found a 20-30% increased risk for first heart attack with use of most coxibs and NSAIDs within three months. The results with celecoxib were not statistically significant, as here. There was no significant increased risk for coxibs beyond three months, but there was a residual risk beyond three months with diclofenac and NSAIDs which were neither ibuprofen nor naproxen.

The best, simplest, conclusion is that coxibs, NSAIDs, and aspirin confer an excess risk of myocardial infarction. Consistently, though, no statistically significant increased risk is being found for celecoxib, though again without dose information. Increased risk may have been difficult to spot previously because a small risk can be lost where the overall risk is high, and we weren't looking. Until recently we have not been looking for cardiovascular ill effects of NSAIDs and aspirin.

A great deal of thinking will need to be done. There will be, and have been, suggestions that all these drugs, including over the counter analgesics, should be withdrawn. But in both these large studies half the patients were present or former users of NSAIDs or coxibs. Alternatives are few, with problems of their own.

The aim should be to maximise efficacy and effectiveness, while minimising both common and reversible adverse events and rare but serious ones. There are balances that need to be struck, new ways of thinking to be found, new research initiated about better and safer use of these medicines, but that may be baying for the moon.

References:
1   SP Johnsen et al. Risk of hospitalization for myocardial infarction among users of rofecoxib, celecoxib, and other NSAIDs. Archives of Internal Medicine 2005 165: 978-984.
2   J Hippisley-Cox, C Coupland. Risk of myocardial infarction in patients taking cyclo-oxygenase-2 inhibitors or conventional non-steroidal anti-inflammatory drugs: population based nested case-control analysis. BMJ 2005 330:1366-1342.

DISCONTINUATION RATES WITH NEWER ANTIDEPRESSANTS

Insufficient attention is given to discontinuation rates in clinical trials. Yet it is a major, and important, outcome. If people cannot take the tablets because they have insufficient clinical effect, or because they suffer unacceptable adverse effects, this limits utility of a medicine or intervention.

Greater acceptability of medicines or interventions is likely to be a major determinant both of therapeutic strategy and overall cost. Moreover, when healthcare systems have limited capacity, use of therapies with lower acceptability places often unacceptable additional strains on already overburdened staff.

Discontinuation rates are sometimes collected in meta-analyses, but meta-analyses of discontinuation rates themselves are uncommon. So one examining discontinuation in a sometimes difficult area, like major depression, is welcome both for the insight it gives us on differences between treatments, and because it makes us think about what evidence is useful for, and the methods we use to obtain it.

Systematic review

The review [1] used five electronic databases to find studies, plus manual searching. Only English language studies were searched for, to early 2004. Studies had to be randomised and double blind, of at least six weeks duration, and with at least 40 patients. Outcomes used were overall discontinuation rates, discontinuation because of lack of efficacy, and discontinuation because of adverse effect.

Only those directly comparing a selective serotonin reuptake inhibitor (SSRI) with another second-generation antidepressant (venlafaxine, mirtazapine, buproprion) were used. Each of these three was considered to act through different pharmacological mechanisms, and comparison was with each separately. Studies with only a placebo comparator were not used.

Results

Twenty studies were found and used, with a few small studies in different populations or with methodological problems found but not used. Most studies used were in people younger than 60 years, used standard diagnostic criteria of major depression, and most had moderate to severe depression.

For seven of the 10 comparisons with venlafaxine (75-225 mg), fluoxetine (20-60 mg) was the SSRI used. For mirtazapine (15-45 mg), paroxetine (20-40 mg) was the SSRI most often used, in three of the four comparisons. For buproprion (150-450 mg, most often sustained release formulation), sertraline (50-200 mg) was the SSRI most often used, in three of six comparisons.

Table 1: Discontinuation rates in head-to-head comparisons of SSRIs with other second-generation antidepressants

Comparison	Number of Trials	Number of Patients	Overall	Adverse events	Lack of efficacy
SSRI	10	1154	24	9	5.3
Venlafaxine		1160	25	11	3.6
SSRI	4	596	31	13	2.2
Mirtazapine		608	29	14	2
SSRI	6	631	17	6.7	4.1
Buproprion		623	14	6.7	3.1

The main results are shown in Table 1. There was no statistical difference in discontinuation overall, or for particular cause, between SSRIs and venlafaxine, mirtazapine, or buproprion.

Comment

The finding was that there were no differences in discontinuation rates overall, or because of either lack of efficacy or adverse effects. The use of only studies where there were sufficient numbers of patients in direct comparisons between SSRIs and other second-generation antidepressants means that we can trust these results, especially because only randomised and double blind trials were accepted.

This is unusual, and often only placebo-controlled studies are available, so that only indirect comparisons are possible. There is no reason to think that there would be a major difference in using indirect comparisons (Bandolier 110), and it would have been instructive to know in this case how well direct and indirect comparisons would have fared.

The authors of the paper provide the bottom line. It says that clinicians can focus on other practical or clinical issues in making treatment choices, given similar efficacy for these drugs. Those might be cost, differences in particular adverse events, or onset of action.

Persistence etc

This is a topic Bandolier has examined on a number of occasions. Bandolier online has a new Pharmacy section, where other studies of compliance, concordance, persistence or adherence have been pulled together. Good studies on improving compliance are few, as a systematic review in Bandolier 127 pointed out. Bandolier would be grateful if pharmacists seeing good studies would let us know of them.

Reference:
1 G Gartlehner et al. Discontinuation rates for selective serotonin reuptake inhibitors and other second-generation antidepressants in outpatients with major depressive disorder: a systematic review and meta-analysis. International Clinical Psychopharmacology 2005 20: 59-69.

EJACULATION DELAY: WHAT'S NORMAL?

Bandolier 69 and 128 examined treatments for premature ejaculation. The results showed that antidepressants, and particularly SSRIs, were useful treatments for premature ejaculation. SSRIs with specific licenses for premature ejaculation are now tested and may be becoming available, so the issue of what is normal (as opposed to desirable) is going to be asked. A multinational survey [1] helps.

Study

The study was conducted in five countries, the Netherlands, Spain, Turkey, UK and USA, each with 70 to 130 couples in stable heterosexual relationships of at least six months, giving a total of 491 couples. Participants were instructed on the use of stopwatches and measurement of intravaginal ejaculatory latency time (IELT). This was defined as the time between the start of vaginal intromission and the start of intravaginal ejaculation.

IELT was to be measured over a four-week study period. Information was also collected on age, circumcision and condom use. The mean IELT over the four week period was calculated for each man.

Results

There were 491 men with an age range of 19 to 73 years (mean 40 years). The distribution of age was 31% aged 18-30 years, 46% age 31-50 years, and 23% aged over 50 years. There were 4,000 completed sexual events, with a mean frequency of eight events per couple over four weeks.

Intravaginal ejaculatory latency time varied between 30 seconds to 44 minutes, with a median IELT of 5.4 minutes (Figure 1). Within country differences ranged from 3.7 minutes in Turkey to 7.6 minutes for the UK. The distribution is shown in Figure 1. The distribution in average IELT for individual men was highly skewed. About 14% of men had an average IELT below 200 seconds, and 26% an IELT above 600 seconds. The 0.5 and 2.5 percentiles were calculated at 0.9 and 1.3 minutes, respectively.

Figure 2: Median Intravaginal ejaculatory latency time by age
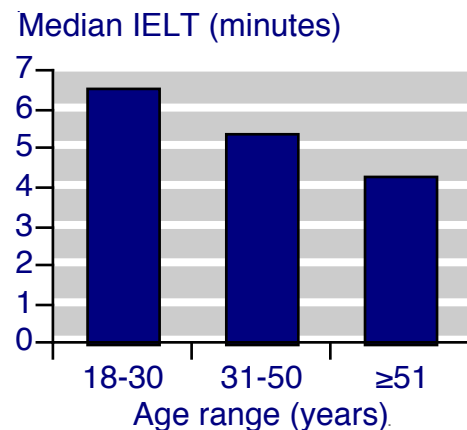
There was no significant difference associated with circumcision, though men from Turkey were excluded as all these men were circumcised. There was no difference related to condom use. Older men had a lower average IELT than younger men (Figure 2).

Comment

Drug treatments for premature ejaculation are likely to become available in the next few years, and some men with premature ejaculation are probably being treated now. Available treatments include local anaesthetic creams, for which there is limited evidence, and which have a risk of desensitisation for female partners when used without a condom.

Drugs with licenses for premature ejaculation are being researched, and may have a license in some countries before long. This will mean interesting decisions about provision by health services. It is also likely to mean a flood of people approaching their doctors for a new treatment for what will look like a newly treatable condition. Good international data on what is normal rather than desirable provides a basis on which decisions can be made.

Reference:
1   MC Waldinger et al. A multinational population survey on intravaginal ejaculation latency time. Journal of Sexual Medicine 2005 2: 492-497.

Figure 1: Distribution of mean individual four-week intravaginal ejaculatory latency time in 491 men aged 19 to 73 years in five countries
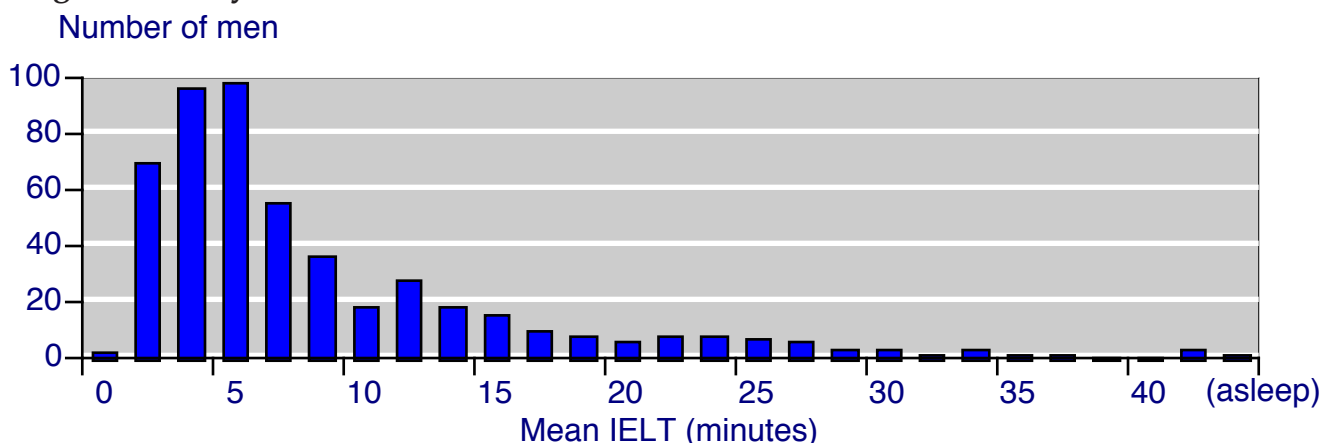
Persistence with statins

Lack of use of prescribed medicines has a number of labels (compliance, concordance, persistence, adherence). For many prescribed medicines, use of the medicines is known to be low, yet good studies are infrequent. Lack of use can be due to patients failing to start therapy prescribed for them. Patients may take medicines only intermittently, or they may discontinue for several reasons, including adverse events.

For statins, we know that persistence is low, and falls with time. An on-line Bandolier review highlighted this in 2004. A new Canadian study [1] provides more information about persistence in middle-aged people, especially in primary and secondary prevention, and about different statins.

Study

The study was in Quebec, where databases have information on patient demographics, medical services, and prescriptions. A cohort of patients with a first prescription for a statin in the years 1998-2000 was selected. They had to have no prescription for a lipid lowering drug in the previous year, and be between 50 and 64 years old. The cohort was divided into use of statin for primary prevention in subjects with no indication of cardiovascular disease by diagnosis or therapy, and for secondary prevention in those with diagnosed coronary artery disease, again by diagnosis or therapy.

The drug database was used to identify statin agents dispensed during the follow up period, which was to mid 2001. The outcome of statin persistence was having any statin prescription dispensed within 60 days of the end of a previous prescription.

Results

There were 13,642 patients in the primary cohort and 4,316 in the secondary cohort. In both cases the mean age was 58 years, but there were expected differences between the two cohorts. The secondary cohort, for instance, had more men, and more patients with hospital admission in the year before first prescription. The most frequent initial prescription was for pravastatin (42%) or simvastatin (36%), with lower rates for atorvastatin (13%), fluvastatin (6%) and lovastatin (3%).

Persistence was reduced to 90% within the first month, mostly because only one prescription was filled. At six months and at three years, persistence was low, and below half by three years (Figure 1), though somewhat higher in the secondary cohort. At six months, significantly higher persistence was found for simvastatin (mean dose 17 mg; Figure 2) than atorvastatin (16 mg), fluvastatin (27 mg) or lovastatin (21 mg), though with limited numbers in some.

The likelihood of stopping statins was higher in people taking more tablets, and who used more pharmacies and had more than three prescribing physicians, but was lower in those with hospital admission in the year before statin was prescribed, who had diabetes, hypertension, or respiratory disease.

Figure 1: Persistence at 6 months and 3 years for primary and secondary cohorts
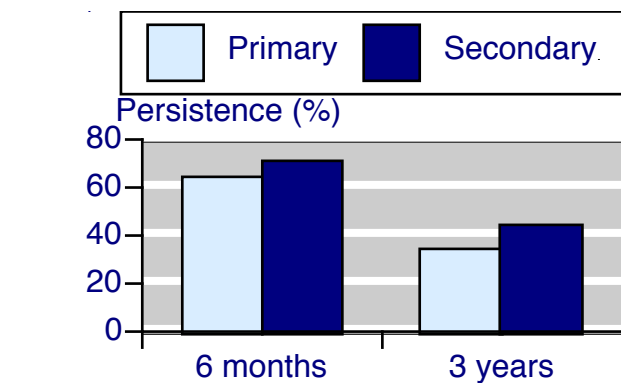
Comment

Bandolier 113 looked at evidence that stopping statins was possibly a bad thing, with higher rates of death or heart attack than in those continuing statin and even, possibly, than in those who never had a statin. Stopping statins is not good, and not just because potential benefits are removed.

This very large database study of middle-aged Canadians confirms what we know from other studies in older people, that statin persistence over several years is low. A review [2] also looks at the pharmacoeconomic consequences, but concludes that we just don't know enough to measure the impact of low persistence.

It is clear, though, that potential benefits on a population level cannot be delivered when people do not take medicines prescribed for them. Healthcare is not a dictatorship, so we need to learn not just about how effective medicines prove to be in clinical trials (where persistence is often very high compared with clinical practice), but what makes people stop taking medicines, and how to encourage them to persist. It's not all what we do, perhaps more the way that we do it. A useful thought for policy makers.

References:
1 S Perreault et al. Persistence and determinants of statin therapy among middle-aged patients for primary and secondary prevention. British Journal of Clinical Pharmacology 2005 59: 564-573.
2 AM Peterson, WF McGhan. Pharmacoeconomic impact of non-compliance with statins. Pharmacoeconomics 2005 23: 13-25.

Figure 2: Six-month persistence with different statins
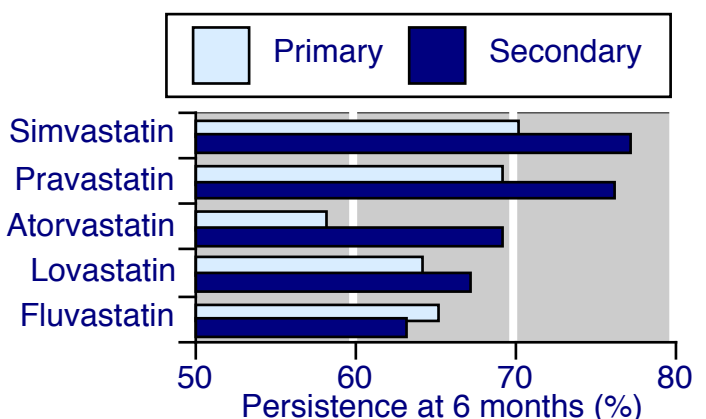
STATINS AND COLORECTAL CANCER

Associations between statins, low cholesterol, and cancer have been sought on many occasions in retrospective analyses of randomised trials, and in observational studies, with mixed results. Bandolier reviewed these in an on-line article in 2003. There has also been a suggestion that statins reduce colorectal cancer, but with conflicting results. A new observational study from Israel [1] provides more information, and highlights the differences between relative and absolute effects.

Study

This case-control study was performed in Israel in a managed care organisation. Cases were people with a diagnosis of colorectal cancer between 1998 and 2004, identified from a database. Controls without colorectal cancer were individually matched according to age, sex, location, and ethnicity.

Participants were interviewed to collect demographic information, and information about family history of cancer over three generations, and personal medical, dietary, and physical history. Medication use over the previous five years was by recall, and specific questions were asked about use of aspirin and NSAIDs, as well as statins. Statin use was verified through prescription records.

Results

After exclusions, there were 1953 patients and 2015 controls, with 1651 matched pairs. The average age was 70 years, split equally between men and women. For the matched pairs, the main differences were that cases had lower rates of hypercholesterolaemia (21 vs 26%) and sports participation (32 vs 41%), and higher rates of family history of colorectal cancer (6.5 vs 4.1%) and lower vegetable consumption (40 vs 32%). Use of statins for at least five years was lower in cases than in controls (Figure 1).

After adjusting for possible confounding factors, use of statins was associated with a significant reduction of risk of colorectal cancer, with an odds ratio of 0.53 (0.38 to 0.74). Similar reductions were found for colon cancer and rectal cancer separately, and for patients with hypercholesterolaemia, ischaemic heart disease, and irritable bowel disease. Use of aspirin or NSAIDs for five years or more was also associated with reduced risk of colorectal cancer, with an adjusted odds ratio of 0.70 (0.55 to 0.90).

Comment

This is a high quality study showing a large association between higher statin use and lower colorectal cancer rate. There is biological plausibility from experimental studies, though other observational studies with smaller numbers of cases have had mixed results, not all producing significant reductions, though tending to lower colorectal cancer rates with higher statin use.

At one level this is really interesting, but the authors also took the trouble to evaluate what the absolute results would

Figure 1: Percentage of cases and controls taking statins for five years or more
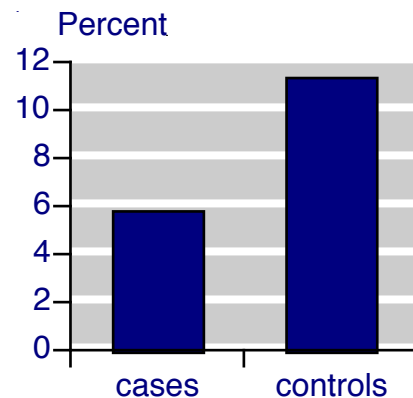
look like if these observational results translated into clinical effect of treatment. In 2002 the incidence of colorectal cancer was 42 per 100,000 Jewish men in Israel. If 100,000 men took a statin for five years, the implication is that there would be 21 fewer colorectal cancers, using an odds ratio of 0.5.

That would be equivalent to an NNT of 100,000 divided by 21, or 4,800. In high-risk cases with double the incidence, the NNT would still be 2,400. For comparison, the five-year NNT to prevent heart attack or stroke for statins in people with an annual risk of 3% is about 20. Hundreds of thousands of people would have to be enrolled in randomised trials to prove the point.

Thus while the result is interesting, and probably important, the immediate practical use is that of knowing that long-term use of statins has a small additional benefit.

Reference:
1 JN Poynter et al. Statins and risk of colorectal cancer. New England Journal of Medicine 2005 352: 2184-2192.

Statin and other relevant stuff on Bandolier online

Statin use continues to be a major component of interventions to reduce cardiovascular disease, along with healthy living exhortation. Readers should know that Bandolier online has been collecting and reviewing good quality evidence for both.

The Bandolier statin pages have collected systematic reviews and meta-analyses of efficacy data, in broad populations and in special groups. They also have reviewed the evidence on the major possible adverse events occasionally attributed to statins. All of this is collected together in a 30-page downloadable PDF.

The Bandolier healthy living pages have recently been overhauled, with material collected together by age. Evidence on eating, drinking, exercise, and weight, plus much more. The pages are written for anyone, not just professionals, and may be useful for anyone wanting to improve their chances of a healthier, and perhaps better and longer life, but who wants to avoid drugs or fads.

ANAEMIA IN OLDER PEOPLE

Bandolier has long been interested in anaemia, but puzzled by varying figures for its prevalence, especially in older people. There are also some puzzles about the point at which anaemia has a major impact on health. A systematic review [1] has sought to examine studies of prevalence according to age, and by age and sex.

Systematic review

Studies of prevalence of anaemia were sought through electronic searching of two major databases up to the beginning of 2003. Studies could also examine functional status, or economic consequences of anaemia in older people. The age cut-off was set at 60 years. Certain studies were excluded, notably those relating anaemia to certain haematological disorders, cancer, drugs, or nutritional deficiencies. The definition of anaemia accepted was that used by authors of individual studies.

Results

There was great heterogeneity in the 71 studies found, in terms of size, populations studied, definitions of anaemia used, and where the study was performed. The most frequent definition of anaemia was that of the WHO: a haemoglobin level of less than 130 g/L for men and less than 120 g/L for women.

Nine studies from Europe and the USA reported prevalence by sex. Overall the prevalence was higher in men (range 3.3% to 61%) than in women (range 3.3% to 41%). Lower values were found in community dwellers, and higher values in patients admitted to geriatric wards.

Six larger studies with more than 700 people reported results by both age and sex. Again, the prevalence of anaemia was higher in men (Figure 1) than in women (Figure 2). In both there was a clear move towards high prevalence of anaemia amongst the oldest old.

Figure 1: Prevalence of anaemia (generally Hb <130 g/L) in men by age in six larger studies

Figure 2: Prevalence of anaemia (generally Hb <120 g/L) in women by age in six larger studies
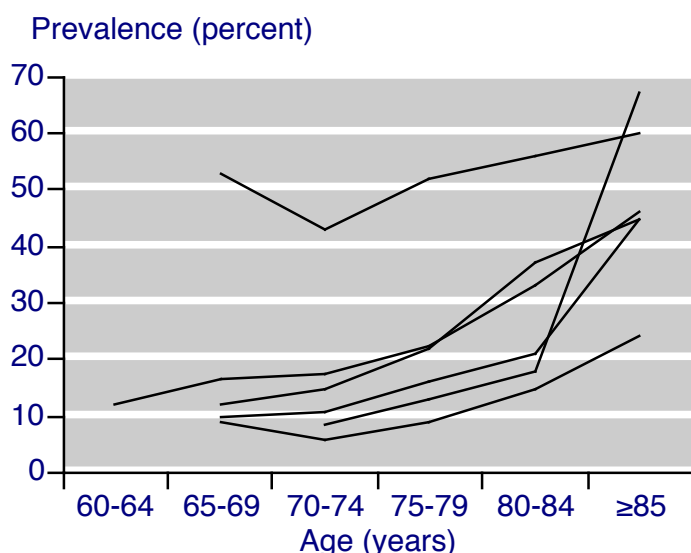
EDITORS

Andrew Moore   Henry McQuay
Pain Relief Unit
The Churchill, Oxford OX3 7LJ
Editorial office: 01865 226132
Editorial fax: 01865 226978
Email: andrew.moore@pru.ox.ac.uk
Internet: www.ebandolier.com

Only three studies evaluated the consequences of anaemia in older people. Anaemia was associated with higher rates of Alzheimer's disease, poorer health, more hospital admission, and greater mortality, though none of the studies was large.

Comment

The higher prevalence of anaemia in older men than older women probably reflects the tendency to use higher cut points for defining anaemia. The higher the cut point, the more men will have lower haemoglobin values and thus be classified as having anaemia. Even so, anaemia is common in older people, and more common in the oldest old. There are probably many reasons for this.

We have no good information about the consequences of anaemia in the elderly, nor, at least from this review, any idea about whether treatment improves their health. This may be Bandolier being just plain dumb, but searching isn't bringing to light good references on the consequences of anaemia at different ages, and in each sex. Nor is it finding good information on treatment of haemoglobin levels at the lower end of normal, or the upper end of abnormal, whatever particular definition is used. If anyone has found it......

Reference:
1   C Beghé et al. Prevalence and outcomes of anaemia in geriatrics: a systematic review of the literature. American Journal of Medicine 2004 116 (7A): 3S-10S.